



## REVIEW ON ALOE VERA

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### ABSTRACT

Aloe Vera, health, ethnobotany, industrial applications, and bioactive substances. Since ancient times, people have known and used the aloe vera plant for its benefits to health, beauty, healing, and skin care. Aloe, which has more than 300 species, primarily grows in arid regions of Africa, Asia, Europe, and America. Aloe Vera is a characteristic product that is being used frequently in the cosmetology industry. Despite the fact that there are numerous indications for its use, controlled trials are necessary to determine its true feasibility. This article briefly examines the aloe Vera plant, its characteristics, components of action, and clinical applications.

### KEYWORDS

**Aloe Vera, health, ethno-botany, commercial uses, bioactive chemicals**

### INTRODUCTION



Aloe vera is a resilient, tropical, drought-resistant, and juicy plant. Aloe Vera has contributed a significant traditional component to the endemic framework of medical practises including Siddha, Unani, Ayurveda, and Homeopathy. [1] [2]. A common, sticky plant that has been the subject of much discussion is aloe vera. The word "aloe" is derived from the Arabic "Alloeh" or Hebrew "Halal," which connotes a master Sparkly who is more elevated. It has contributed significantly to the natural course of action of medical systems including Ayurveda, Siddha, Unani, and homoeopathy. [3] One of the 250 varieties of aloe vera is aloe barbadensis, which may be a semi-tropical shrub. Aloe Vera is a succulent plant species belonging to the genus Aloe (/aeloi/ or /lo/). A perennial evergreen, it originates from the Middle Eastern Promontory but grows untamed in tropical regions all over the world and is cultivated for rural and therapeutic uses. The species, which is grown successfully inside as a trimmed plant, is also used for enriching reasons. [4] The use of aloe vera has recently gained popularity as a result of homegrown development led by naturopaths, yogis, proponents of elective medications, and all-around healers. Aloe crude fabric's market value is estimated to be at \$125 million dollars. According to estimates, the market for packaged products containing aloe vera is worth over \$110 billion [5]. In the year 2000, Greek

researchers saw aloe vera as the universal cure-all. Aloe was known to the Egyptians as "the herb of immortality." The aloe vera plant is now used in dermatology for a number of different things. [6],[7],[8],[9],[10]

## DESCRIPTION

Aloe vera is a potentially stemless or extremely short-stemmed plant that grows to be 60–100 cm (24–39 in) tall and spreads through offsets. The clear out are thick and plump, ranging in colour from green to grey-green with certain assortments looking white. pieces on the top and bottom of the stems. [11] The leaf's edge bears tiny white teeth and is serrated. Each bloom is pendulous and has a yellow tubular corolla that is 2-3 cm (0.8-1.2 in) long. The blooms are produced in the summer on a spike that can reach a height of 90 cm (35 in). [11] [12] Aloe Vera forms arbuscular mycorrhiza, a positive association that gives the plant a better method to access mineral supplements in the soil, just like other Aloe species. [13].

## BOTANY OF THE ALOE VERA

Juicy aloe Vera, which resembles a cactus, belongs to the liliaceous plant family. The plant has a regular growth rate of 20 takes off in a straight, dense rosette, or it has an unusually small stem (up to 25 cm long). The clear out grow to be 6 to 7 cm wide and 40 to 50 cm long. The takes off are often studded with young plants and are either thick, meaty, and water-holding; concave on the beat side; grey-green usually reddish. The leaf's underside has a rounded shape and a pale pink border with 2 mm long, spiky teeth spaced every 10 to 20 mm [14]

## TAXONOMY

**Kingdom-Plantae**

**Order-Asparagales**

**Division-Spermatophyte**

**Subdivision-Angiospermae**

**Class-Monocotyledoneae**

**Genus-Aloe Species**

**Barbadensis Mill [15]**

Carl Linnaeus first identified the species as *Aloe perfoliata* var. *Vera*, [16] and was later described as *Aloe Vera* in 1768 by Nicolas Laurens Burman in *Greenery Indicia* on April 6, and as *Aloe barbadensis* a few ten days later by Philip Mill operator in the *Gardener's Dictionary*. [17]

## SYNONYMS

**Aloe, Musabbar, Kumari**

## BIOLOGICAL SOURCE

- ✓ The dried latex of the leaves of numerous kinds of aloes is known as aloe, including:
- ✓ *Aloe barbadensis* Miller (or Curacao Aloe);
- ✓ *Aloe ferox* Miller (or Cape Aloe);
- ✓ *Aloe perryi* Baker (or Socotrine Aloe);
- ✓ Miller and Baker's *Aloe spicata* and African Aloe (or Cape Aloe)

These plants are all members of the Liliaceae family. [18] Aloe Vera is made up of fresh juice that is gathered by entry point from the undersides of various aloe species. *Aloe perryi*, also known as *Aloe ferox* and *Aloe barbadensis* Mil. [19]



**Family :-** It is a member of the **Liliaceae family**.

**Geographical Source:-** Aloe vera are native to East and South Africa, but they have been introduced to the West Indies and modern nations, and they will certainly flourish in the nations bordering the Mediterranean. The states of Rajasthan, Andhra Pradesh, Gujarat, Maharashtra, the United Kingdom, Himachal Pradesh, and Tamil Nadu are home to it. Aruba, Bonaire, and Haiti are the countries where it was first financially established. [20]

## MORPHOLOGY

- ★ **Taste:-** Bitter
- ★ **Odour :-** None
- ★ **Size & Shape :-** Plant grows to a lance-shaped, elongated height of 60-100 cm.
- ★ **Strands Colour :-** Leaves are green to grey- green flower.
- ★ **Flower :-** Yellow tubular in 25-35cm in a slender loose stamens.
- ★ **Root :-** Long root fibbers that can measure 30 to 40 cm. [21]

The leaves of aloe vera have serrated edges and are lance-shaped.

1. They are very beefy thick.
2. Green or slightly grey-green.
3. The surface is covered in wax.
4. Juicy, which means that because they are moist, they can maintain their shape.

The clears out are adjusted at the foot side, float on the beat side, and contain water (the gel). Aloe Vera dots on young plants range in colour from pale green to white. The spots disappear once the Aloe Vera grows. Nonetheless, due to hereditary reasons, some species will not lose their spots. [22]

## ACTIVE COMPONENTS WITH ITS INGREDIENTS

There are 75 potentially active ingredients in aloe vera, including vitamins, enzymes, minerals, carbohydrates, lignin, saponins, salicylic acids, and amino acids. [23–24]

**Vitamins:-** It contains vitamins A (beta-carotene), C and E, which are cancer prevention agents. It moreover contains vitamin B12, folic corrosive, and choline. Antioxidant neutralizes free radicals.

**Enzymes:-** Aliase, antacid phosphatase, amylase, bradykinase, carboxypeptidase, catalase, cellulase, lipase, and peroxidase are only a few of the eight enzymes found in it. When applied topically to the skin, bradykinase helps to reduce excessive inflammation, while other enzymes help with the breakdown of fats and sugars

**Sugars:-** It provides polysaccharides (glucomannans/polymannose) as well as monosaccharides (glucose and fructose). They are called mucopolysaccharides and are found in the mucilage layer of the plant. Mannose-6-phosphate is the most prominent monosaccharide, whereas glucomannans [ $\beta$ -(1,4)-acetylated mannan] are the most prevalent polysaccharides. Acemannan, a blatant glucomannan, has also been discovered. Alprogen, a new anti-inflammatory molecule, and C-glucosyl chromone, a glycoprotein with antiallergic effects, have recently been isolated from Aloe Vera gel. [25, 26]

## MECHANISM OF ACTION

- **Mending property:-** A mannose-rich polysaccharide called glucomannan and a growth hormone called gibberellin interact with fibroblast development figure receptors to strengthen their function and growth, which in turn significantly increases collagen synthesis following topical and oral Aloe Vera. [27] Aloe gel changed the collagen composition (more type III) and increased the degree of collagen cross-connectivity rather than simply increasing the collagen content of the wound. This accelerated wound healing and increased the ability of newly formed scar tissue to break. [28] [29].
- **Anti- Diabetic :-** Lophenol, 24-methyl-lophenol, 24-ethyl-lophenol, cycloartanol, and 24-hydroxyl-lophenol are the five phytosterols found in aloe vera. Methylene cycloartanol had adverse effects on diabetes in type 2 diabetic mice. Polysaccharides found in aloe vera increase aggression and have hypoglycemic effects. [30]
- **Effects on the immune system:-** Alprogen prevented calcium from penetrating shaft cells, blocking the entry of histamine and leukotriene from shaft cells that would have otherwise been blocked by an antigen-antibody complex. Acemannan stimulates the mix and entry of interleukin-1 (IL-1) and tumor-rotting variable from macrophages in mice in a study on mice that had previously been injected with murine sarcoma cells. This starts a safe strike that successfully degrades and pushes back the harmful cells. [31]
- **Antiseptics :-** Lupeol, salicylic corrosive, urea nitrogen, cinnamonic corrosive, phenols, and sulphur are six sterile specialists found in aloe vera. They are all suppressive to viruses, bacteria, and living things. [32]
- **Anti-cancer properties:-** It has not been thoroughly assessed that Aloe Vera plays a significant role in nature's ability to cause cancer. Although it has been hypothesised that using anthranoid-containing intestinal solutions frequently contributes to colorectal tumours, no evidence of a causal relationship between anthranoid diuretic use and colorectal risk has been found. Additionally, Aloe Vera juice helps the body heal itself from the evil effects of radiation and chemotherapy, which destroy healthy, sound, resistant cells needed for the recov [33]

## CHEMICAL CONSTITUENTS

The three isomeric of Alones, Barboloin, and Isobarbaloin, which together make up the allegedly crystalline Aalin, are the primary basic energetic boss components of Aloe Vera. These components are shown in pharmaceuticals at concentrations of 10 to 30% and include unclear Aaloin, sap, emodin, and Aloe-emodin. The essential group of complex carbohydrates, including acemannan, are found inside the take off gel and exert an impervious empowering effect.[34]

- ❖ **Wound healing effect:-** Aloe gel's ability to speed up the healing process of wounds has been attributed to a variety of processes, including keeping the site moist, enhancing epithelial cell migration, and reducing inflammation. [35]
- ❖ **Anti Tumour Activity :-** Aloe Vera contains a variety of glycoproteins. maintaining the configuration of potentially disease-causing benzopyrene-DNA adducts The inhibition of the tumor-promoting effects of phorbol myristic acidic corrosive and the induction of glutathione s-transferase have also been suggested, suggesting potential favourable circumstances for employing aloe gel as a piece of cancer. [36]



**Aloe Gel :-** At a pH of 4.5, the gel or mucilage obtained from the tissue of the leaf is 99% water. Several cosmetic products include the polysaccharide glucomannan, a component, since it effectively moisturises human skin. [37]

The benefits of aloe vera in treating burns and other wounds are its most well-known uses. When applied to a wound, aloe vera increases the rate of wound closure and the wound's malleability by encouraging cell growth [38] [39].

## CULTIVATION AND COLLECTION

More than 250 different species of aloe have been developed worldwide. Nonetheless, only two species are currently produced mechanically, with *Aloe aboescens* and *Aloe barbadensis* being the most common. The aloe vera plant can only grow in warm, tropical regions since it cannot withstand freezing temperatures. It grows steadily to a size of 0.8 by 1 metres and is evergreen. The plants like light (sandy) and medium (loamy) soil, which can produce in nutrient-poor soil if it is completely drained. The plant leans towards fundamental (fundamental) soil that is damaging, nonpartisan, and fundamental. It cannot produce in the shadows. It needs clammy or dry soil and can withstand dry spells. These plants are xerophytic. [40]

## USES

Antineoplastic, cathartic, carminative, deobstuent, depurative, diuretic, stomachic, and emmenagogue are all properties of aloe vera. To treat dyspepsia, amenorrhea, smoulders, colic, hyperdenosis, hepatopathy, splenopathy, hindrance, run, menorrhoea, stomach, tumours, dropsy carbunles, sciatica, lumbago, and tooting, juice is often used. In cases of ulcerative colitis and weight ulcers, aloe vera gel is especially helpful. [41]

1. Erythema,
2. Genital Herpes,
3. Seborrheic Dermatitis,
4. Psoriasis Vulgaris,
5. Skin Moisturizer,
6. Type 2 Diabetes,
7. Oral Lichen Planus Infections,
8. Angina Pectoris,

Ulcerative Colitis, and more.

## CONCLUSION

I was questioned about a homegrown plant called aloe vera that had way too much information. It might be a specific plant, or it might look like other kinds of therapeutic exercises. Thus, it is crucial in the pharmaceutical industry. Since ancient times, aloe vera and its arrangement have been widely used as medicines. Many studies have been done to show the effectiveness of aloe Vera in treating various health problems. The dynamic elements concealed by its delicious clearings out have the power to significantly improve human life and welfare.

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